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SHANGHAI AND ITS HINTERLAND*

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Shanghai, the gateway to China and the largest city in the Far East, has attained its place of prominence in a relatively short time. Altho China is very old, Shanghai did not come into existence until sometime after the sixth century A.D. When the British traders first visited Shanghai, in 1842, they found a walled settlement of between fifty and sixty thousand inhabitants, most of whom were fishermen. Today, Greater Shanghai with a population of 3,685,000, occupies a place of supremacy in the economic activities of the country and holds the rank of fifth city of the world in population.

Modern Shanghai is the result of an unusual combination of geographic and human factors. Its geographical location is most favorable because it occupies a position midway between the northern and the southern limits of the east coast of China and near the mouth of the Yangtse River. All other ports have shallow harbors and limited hinterlands. Concentration of activity at Shanghai has also been increased by its location with respect to the great steamship routes of the Western Pacific. It is the entrepot for internal as well as coastwise and external trade. Also, the political security enjoyed by Shanghai under the protection of foreign powers has contributed much to the economic development. The whole urban group which stretches out for miles along the Whangpoo River handles 48 per cent of the trade of China and gives it eighth place among the ports of the world in value of imports and exports.

AREAS TRIBUTARY TO SHANGHAI

The expected continuance of Shanghai as a leading port is due mainly to a hinterland of fertile delta lands and the vast subtropical

* This paper disregards the effects of the Japanese invasion of the Shanghai area which began in July, 1937 and attempts to consider only the environmental conditions and human developments in progress previous to this political disturbance. It is hoped that this study will give a more enlightened understanding of the strategic location of Shanghai from both a political and a commercial standpoint.

drainage basin of the Yangtse River. Access, mainly by water, to this watershed with an area of about one-half of China Proper and supporting nearly 200,000,000 people (about one-tenth of the population of the world), gives to Shanghai a remarkably privileged position. Altho the drainage basin of our own Mississippi Valley, which contains two-fifths of the United States, is larger, it supports a population only one-fourth that of the Yangtse Valley on nearly twice as much territory. The unique location of Shanghai at the apex of this funnel-shaped area gives it a position strategically superior to most other world cities and gives it the key position in the economic life of the whole Chinese nation. No other port in the world possesses so potential a field of supply and demand.

Climate is one of the basic factors conditioning the great productiveness of a region where agriculture is so significant. In general, the climate is the humid subtropical type with a marked summer rainy season under the influence of the southeast monsoon, comparable in various respects to the climate of our Cotton Belt. The average rainfall for this entire region is 45 inches. Central China has cool winters with the mean sea-level temperatures above freezing. Two and three crops are secured annually because of the long growing season, ample rainfall, and the painstaking agricultural methods of the people.

The most highly developed part of the entire Shanghai hinterland is the alluvial part of the basin comprising the deltaic plain built up by the river mud brought down from the adjacent highlands, an area about the size of Illinois with a population of 40,000,000 Chinese. This remarkably fertile silk- and cotton-producing region supplies Shanghai with many textile exports. Altho this flat alluvial plain lacks minerals, fuel, water power, wood and stone, it is a great producer of foods and is one of the most densely populated regions of its size in the world. Its average density of population is over 800, with an average of 2.3 acres per farm household. Fifty to sixty per cent of the total area is cultivated.

Numerous canals which afford easy transportation between cities and towns of the district intersect the plain in every direction. At a distance boats which traverse them appear as if they were sailing thru the fields. On this network of waterways, estimated at 30,000 miles, products are brought to Shanghai and imports of foreign goods or the products of Shanghai factories are distributed into the interior. These canals also serve as a drainage system.

The Yangtse lowland is a region of two crops. Summer crops

consist of rice, cotton, silk, corn, and beans; winter crops include wheat, barley, bread, beans, and rape seed. Rice is the most important food crop. Silk cocoons form one of the chief cash crops, especially in the southern half of the delta where they are extensively produced around Tai Hu and in the vicinity of Hangchow. The finest white silk in the world is obtained from the vicinity of Wusih. Here and also near Hangchow from half to a quarter of the land is devoted to mulberry culture.

Cotton production is one of the most important industries of all China. About 75 per cent of the raw cotton consumed in Shanghai's Chinese mills is of home production, 20 per cent is imported from India and 5 or 6 per cent from America and Egypt. No other country consumes as much cotton as does China. The factors combining to make this area distinctive in the cotton textile industry which has reached its marked development in the Shanghai area are a large local market, the favorable climate for the growth of cotton, the advantageous location, and an adequate supply of cheap labor.

Two-thirds of the total area of China devoted to tea culture is within the southern limits of the Yangtse drainage basin. The South Yangtse Hills produce the finest quality of tea in China. Tea is grown in scattered patches, usually on sunny hillsides. Altho China formerly supplied all the tea of the world, the export trade has greatly declined within the past century, owing to the competition of Ceylon and Assam and the failure to maintain the quality of Chinese tea. Decline in China's share of tea exports fell from 42 per cent in 1896 to 11 per cent by 1925. Yet Shanghai leads all other Chinese cities in its export.

TRANSPORTATION FACILITIES IN THE YANGTSE VALLEY

As a trade region the Yangtse Valley is the most important in China. Here steam traffic by way of the Yangtse River, the jugular vein of central China, reaches 1400 miles into the heart of western China and during all but the period of lowest water small vessels can go considerably further. The navigable tributaries of the Yangtse are many and wide spreading. Beyond the range open to steam traffic there is native shipping where shallow draft boats and bamboo rafts carry loads upstream in a foot of water. It is estimated that in all there must be more than 25,000 miles of Yangtse Valley waterways ultimately navigable from Shanghai, which must contact more than 200,000,000 people as easily as they can now be reached in any other way from the east coast. About 30 per cent of Shang-

hai's foreign imports are re-exported up the Yangtse an as the Valley trade has long been mainly by water, trade centers such as Nanking, Hankow, Ichang, and Chungking show a high degree of development.

The problems which the river presents are as big as the Yangtse itself. Rapid silting, a bed which makes and unmakes itself so rapidly that it takes all the time of foreign inspectors to maintain

Fig. 1. Map of Central China showing the high mountain and plateau barriers that focus the Yangtse Valley on Shanghai. (Courtesy, *The Geographical Magazine*)

navigable channels, the seasonal high water and shallows, and the navigation of the gorges and their rapids are the major problems. The dangers of navigation are great on a river whose annual shift in level is more than 90 feet. Navigation is likely to be suspended for short periods during very low winter levels. Draft is unlimited from May to October as far as Nanking where there is 24 feet of water during the low water season. Ocean-going deep-draft vessels may safely navigate the lower river during the high water period.

The greatest obstacle to navigation in rendering possible the easier tapping of the wonder province of Szechuan to the west is the steep descent thru tremendous gorges (Fig. 1). In the section from Chungking to Ichang (400 miles) there are 35 rapids with an average drop of 14 inches per mile. In reality the actual bed of the river is a series of pockets some of which have a depth of 200 feet. Hydro-electric possibilities at Chungking are 30 per cent more than at Niagara Falls.

CHARACTER OF THE HARBOR

The immediate site of Shanghai is far from ideal. However, it is not located on the Yangtse but on a tributary, the Whangpoo, at a point some 14 miles above its junction with the main stream and 54 miles from the open sea. Two great advantages in developing a port off the main estuary of the Yangtse are that the tributaries afford greater protection from typhoons than would any location on the wider mouth of the Yangtse, and there has been greater freedom from silting because of a lighter load of silt being carried by the tributary stream.

A brief study of the geology of this broad alluvial plain without rock exposures will give a greater appreciation of the problems connected with the unfavorable site of this great metropolitan area. Chief of these problems are those concerning navigation, water supply, the construction of tall buildings, and the lack of building materials in the proximity. Shanghai is built on a delta, probably a thousand feet in thickness, which represents the load laid down during countless thousands of years. At the present time the shoreline is advancing seaward at the rate of one mile in seventy years. It is estimated that if the load of the river had always been the same it has taken 60,000 years to build this delta of 25,000 square miles.

The absence of bed rock beneath Shanghai presents a difficult problem in the construction of large buildings and engineering works. Piles are commonly used as foundations but there is no coarse sand stratum near the surface to which they may be driven. In some localities the soil is so soft that it is practically liquid mud and piles sink as much as six feet with a single blow. All heavy buildings have the raft type of foundation with piling in addition. Various types of piles are being used. Spliced timbers are sometimes driven to a depth of eighty feet. Concrete are also employed either pre-cast or cast in place. The latest method consists of sinking a casing and filling the hole with concrete as the casing is gradually withdrawn. While the concrete is still liquid it is tamped and thus squeezed out into the surrounding sediment. An irregular contact is thus secured which makes a stronger support, yet it is not unusual for a building to sink six inches. Thus the construction of the great buildings along the Bund represents a remarkable engineering achievement.

At the time of the opening of Chinese ports to foreign trade in 1842, the harbor and channel to Shanghai were entirely adequate

for the ocean-going vessels then carrying the commodities of foreign trade. As ships became larger it was feared that Shanghai would suffer severe loss from the diversion of business to other places because it was becoming inaccessible to these ships of increased draft. In the harbor itself the channel was too narrow and bars were commencing to rise. The authorities soon realized a

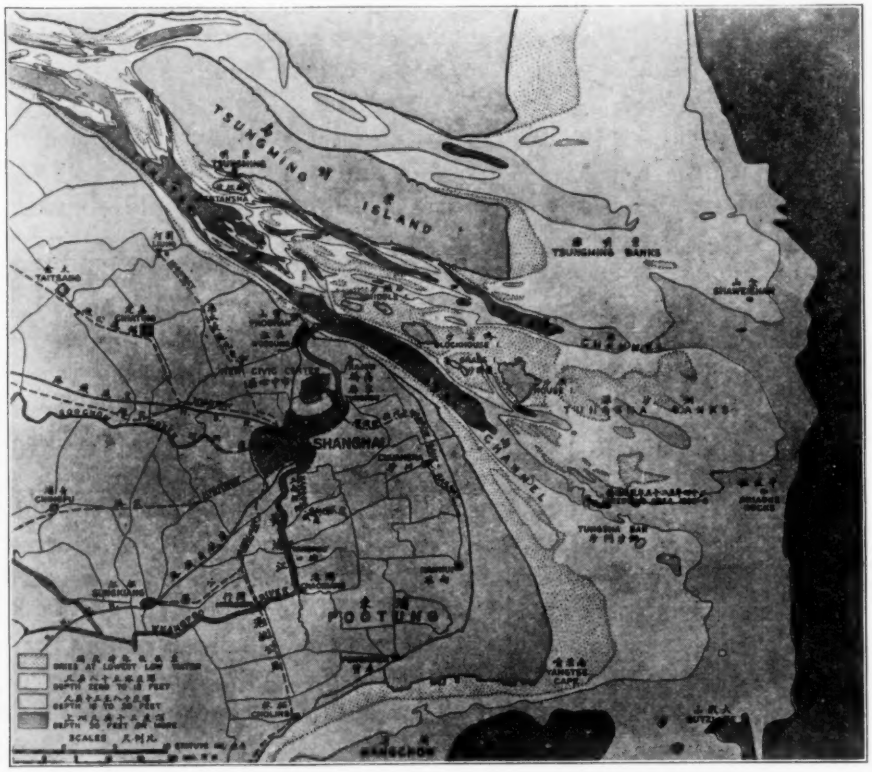

Fig. 2. Estuary approaches to Shanghai showing the location of the bars and the dredging area on Tungsha Bar. (Courtesy, Whangpoo Conservancy Board)

serious problem. The result was the Whangpoo Conservancy Board which was created to undertake the new works necessary to improve the existing channel.

Altho conditions in the Whangpoo have been greatly improved the most serious obstacle of all has been the impediment to ships approaching Shanghai, known as the Tungsha Bar or "Fairy Flats" (Fig. 2). This is a huge shoal in the South Channel of the Yangtse some 30 miles southeast of Woosung. The Bar is over two

miles wide and the length in which it affects deep-draft ships is about 20 miles. At minimum low water there is a depth of only 18 feet over the crest of the Bar. To make a navigable trench in the Bar 1000 feet wide with a bottom level 9 feet below the crest of the Bar, involves the removal of twenty million cubic yards of mud. A dredger with an output in mud of 25,000 cubic yards dredged and disposed of in ten working hours is slowly accomplishing this enormous task. The Shanghai harbor is deficient in mechanical equipment which is probably due to the prevalence of lightering and also the low cost of hand labor. However, hand labor is rapidly increasing in cost. Goods are moved from transit sheds to distant warehouses chiefly by two-wheeled hand trucks capable of carrying about one ton and by wheelbarrow. Motor trucks are rapidly replacing hand trucks for the longer hauls on the Shanghai side of the river.

THE COMMERCIAL IMPORTANCE OF SHANGHAI

Shanghai functions principally as a commercial city. It is China's principal point of contact with the world as well as the port thru which much of China's recorded domestic trade flows. Sixty per cent of the foreign trade of China passed thru Shanghai in 1935. The significance of Shanghai to China is understood when we realize that the Chinese Government draws 47.5 per cent of its revenue from the Shanghai customs.

The first westerner who visited and described the possibilities of Shanghai as an excellent center for commerce was the Reverend Charles Gutzlaff in his diary of two voyages (1831 and 1832) along the coast of China. He describes the care with which the marshy grounds had been drained and the crops, rice and wheat, raised annually. Many junks of 200 tons burden were moving up and down the river. These junks brought oil-cakes and peas to Shanghai from the north. The exports consisted "chiefly of raw silk, silk stuffs, and tea, besides manufactures fabricated by the skillful hand of the Kiang-nan people." Gutzlaff also adds, "There is always a brisk trade carried on, which would be much increased if Europeans were admitted to the port."

Another writer in the *Penny Magazine* for March 4, 1843 (during the Opium War, which resulted in Shanghai being opened to foreign trade) describes the town as "very large" and states that "as a commercial city nothing can exceed it. . . . In this town and its neighborhood 200,000 weavers are occupied in making plain

clothes and muslins. . . . Nankeen cloth from Shanghai is said to be the best in the empire."

It is interesting to note that during the first six weeks after the port of Shanghai was opened (November 14 to December 31, 1843) seven foreign vessels entered the harbor. In tonnage entered between 1925 and 1935, Shanghai ranks well with the first ten ports of the world. The total imports and exports in 1935 amounted to 1,552,300,000 tons with a net value of $793,915,996. The United States appears to be its best customer, with Germany, Japan, and Great Britain ranking high.

This metropolis is so important in the economic life of the country that it had in 1934 about one-half of all the factories in the country which came up to the standards of the Chinese factory law, which defines a factory as an establishment using motive power and employing thirty or more workers. In variety as well as in number of factories Shanghai is not paralleled by any other city of China. Altho the Shanghai area has long been noted for its home manufactures of cotton and silks, the cutting off of supplies brought about by the World War undoubtedly led to the starting of many new industries and the expansion of those already in existence. The leading manufacturing industries listed as to rank are: textile industry (cotton and silk), apparel manufacturing, preparation of food stuffs and beverages, machine manufactures, manufacture of leather and rubber goods, chemical industries, paper manufacturing and printing, and a long miscellaneous list.

The first impressions gained by the Oriental visitor upon approaching Shanghai exhibit little that suggests China or the Orient. On the river crowded with shipping is all the bustle of the West. The smoke stacks of many factories stand out in a sky line which recalls memories of Europe or America. Noises of industries fill the air. Men and women of all races and costumes pass by in a fascinating mixture. The traveler sees much of that to which he is accustomed in the homeland, "tall buildings, well paved streets, large hotels and clubs, parks and bridges, the stream of automobiles, trams and buses, the numerous shops, and, at night, the brilliant electric lighting." But on closer inspection he finds much that is different—"the crowds of Chinese in the streets, the imposing Sikh policeman, the rickshas and wheelbarrows, the Chinese shops with their ornate gilding and picturesque signboards." In this most westernized port of the Far East, neither race nor culture predominates.

GRADATIONS IN MAP LEARNING*

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It has been said that a map is a shorthand representation of a mass of geographical information. Like shorthand, however, its usefulness is dependent upon one's ability to interpret the various symbols thereon, and their relationships one to the other. Too often this ability is not adequate to meet either the pupil's needs in school or the adult's needs in everyday life.

CAUSES OF POOR MAP-READING ABILITY

Several factors contribute to this unfortunate condition. One of the major handicaps in the efficient use of maps is the result of thrusting the map with its many symbols upon the child before definite concepts of the physical or cultural features to be represented by the symbols have been built up. To some children and many adults New York is a dot on the map; the Mississippi River is a black wavy line on the map; and Italy is a boot-shaped area projecting from Southern Europe. Every symbol on a map of a given learning level should call to mind specific concepts, if the map concepts have been developed by observation, by pictures, by verbal matter, or by both pictures and verbal matter. Of course there must be careful gradation in the acquisition of these map concepts.

Another cause of poor map work is inadequate map equipment. Even today there are schools scattered thruout the United States without a single physical-political wall map and, in some cases, textbook maps of such a type as to be practically useless as far as developing map concepts is concerned. If a globe is found in this type of situation, it is a political globe usually so small and so cluttered up with detail as to greatly limit its usefulness. It is sheer folly to expect the average teacher to do creditable work in geography without suitable tools with which to work. An adequate basal map equipment, graded to fit the needs of the different levels of learning, is quite essential in modern geographic education.

A third contributory factor to poor map work is the lack of uniformity in the use of map symbols. On one map light green may

* Abstract of paper presented at the Boston Meeting of the National Council of Geography Teachers, December 27, 1938.

represent land from sea level to 500 feet, on another land from sea level to 600 feet, and on still another land from sea level to 1000 feet. Variations are also common to the symbols representing cities. Even with the key or legend, these and other variations are somewhat confusing to children. How map-reading would be simplified if a particular symbol represented the same thing on every map at a given educational level.

The size of the map together with the amount of data that it contains is often a handicap in the efficient use of it. Would it not be better to omit many of the irrelevant data, or data that are of no functional value to the children of a particular grade? Would not the data to be used by the children stand out more boldly, and hence serve its purpose better, if such were the case?

GRADATIONS IN GEOGRAPHIC UNITS AND MAP LEARNING

Since we have considered some of the more pertinent causes of poor map-reading, we shall now direct our attention to factors which should lead to the effective use of maps. In geographic education today we are concerned not only with what to teach and how to teach the various geographic relationships and understandings but also at what learning level to teach particular units. Just as the units of work are carefully graded to fit the abilities and needs of the children of the different educational levels, so must the maps used in the various learning levels be of varying complexity, gradually increasing in difficulty from level to level, so that map-reading ability may develop step by step.

The Third Grade. In the third grade children begin to sense the natural and cultural items in their immediate environment. They acquire some of the understanding of the adjustments people in the home community make to the elements of weather and climate. They learn how the home community is somewhat dependent upon other regions having natural environments different from their own. At this level of learning direction is taught, if it has not been taught earlier. The children's only map need at this time is a very simple map of the local community, or maps of parts of the local community, developed by the group under the guidance of the teacher. However, unless the third grade teacher has had training in map-development and can skilfully direct the children's efforts, it is advisable to defer map work until the following year.

The Fourth Grade. The major objective of the fourth year, which is usually considered the first level of real geographic learning, is the gaining of world understandings of simple, direct one-step relationships between certain human activities and contrasting types of natural environments at varying distances from the equator. No particular region or land mass is studied as such, but rather as an example of the simple direct responses of people to the conditions of their natural environment. During this year's work political divisions are not important.

The slated globe is used in teaching the shape of the earth and its inclination on the axis. The equator, as an imaginary line midway between the poles, is developed. Other "east-west" lines and "north-south" lines are introduced as aids in determining direction, first on the globe and later on the map.

At the conclusion of the first unit of work, after definite concepts of the items of the natural and cultural environment, as river and city, have been built up, a simple map of the area is presented. Its location with relation to the equator is noted on the slated globe. As other units are studied, the mapped area increases. Thus a simple map evolves, a map on which only meaningful symbols appear. Careful map development should be common to every fourth grade geography text.

In this level of learning the physical-political globe is used. It should be large enough to be functional, at least sixteen inches in diameter, and should be much less complex, that is, it should contain fewer symbols than are found on most globes now in use.

During this year the children learn to read the symbols of natural and cultural features on simple maps, that is, maps on which only semi-pictorial symbols are used, and on which are represented only the natural and cultural features that are needed in developing the least intensive type of regional personality understandings. They learn to read direction and comparative distance on simple maps and on the globe. They read into a map one-step relationships; they read into the globe natural conditions associated with distance from the equator in terms such as "near the poles" and "near the equator."

The Fifth Grade. In the second level of geographic learning the human-use regions of the United States are given major consideration, first, understandings of the relationships in regions in which the work activities of the people are most directly dependent upon

the immediate natural environment and, later, regions where the relationships are more complex, as in the industrial areas. The work of this level is climaxed by an understanding of the geographic personality of the United States. During this, the fifth year, a new relationship is developed, namely, the relationship between distribution of population and the natural environment.

As the complexity of the relationships involved in the human-use regions increases, so do the map needs change. The simple map employed in the fourth grade no longer suffices. The physical-political map on which elevations are shown by color-bands and contour lines at borders of color-bands is now in almost constant use. Maps showing seasonal temperature, seasonal and annual rainfall, natural vegetation, density of population by means of color-bands or dots, and maps showing distribution of cultural features, such as crops and livestock are introduced as the need arises. Each of these maps should contain only essential data rather than too many data as is too often the case.

The children now depend upon maps for much geographic information. They not only read maps showing the distribution of natural features, as highlands and lowlands, seasonal and annual rainfall, seasonal temperatures, length of the frost-free season, native vegetation, coal fields, oil fields, and other minerals, and maps showing the distribution of cultural features, as density of population, railroad patterns, crops, and livestock, but they compare an area on one type of map with the same area on other types of maps in developing geographic understandings. They constantly read geographic relationships from maps, the relationships between the growth of Chicago and its location along Lake Michigan in a lowland agricultural area, or the relationship between the production of cotton in our Southern States and the climatic and surface features of the region. They use the scale of miles in measuring direct or airline distance from one place to another; they read direction on the map and also distance north and south of the equator, both in degrees and in miles, using 70 miles as equal to one degree.

The Sixth Grade. From an understanding of separate human-use regions, the next step is to a composite of the human-use regions of the country, or the geographic personalities of countries, first, understandings of the geographic personalities of the various countries in which the culture is very similar to that of the United States, and then those of countries in which the racial heritage is very

different from that of the United States, and, in some cases, where the pressure of population upon the land and the attendant lowering of the standard of living are complicating factors. These are more difficult understandings than those of the single human-use regions, since the interdependence of the various parts of the country is introduced.

During this level of learning, which usually begins the latter part of the fifth year or the early part of the sixth year, maps used in the previous level are in constant use. A world map showing the principal uses of land, the daily weather map, slated base maps of the continents studied, the slated base map of the world on other than a Mercator projection, and a good atlas are also used. Of course the slated and physical-political globes continue in use at every learning level.

Areas of high pressure and low pressure are taught; longitude is developed; and definite instruction is given on the various projections on which maps are drawn, and the relative merits and limitations of each.

In addition to natural and cultural features and their relationships to each other read from maps in the earlier levels of learning, the children now read the relationship between high pressure and low pressure areas and their general direction across the continents, and weather. They read longitude on the map, and apply it in the calculation of standard time, and in the finding of places when the latitude is also given. They locate on outline maps countries studied, and important cities, rivers, mountains, and seas in or near those countries. They recognize from a sketch map of the immediate site some of the more important cities such as London and Paris. They identify uncaptioned maps of Europe showing the distribution of olives, citrus fruits, grapes, winter wheat, spring wheat, sugar beets, rye, flax, corn, and goats. They express on the traced map or a printed desk base map the location of specific places, the distribution of population densities, and the distribution of products.

The Junior High School. With this accomplishment we have completed the work of the elementary grades, and are now ready to consider the work of the junior high school, namely, the fourth and fifth levels of learning. The fourth level is characterized by understandings of geographic individualities of countries where there are dual cultures, that of the transplanted ruling people and that of the native peoples who are playing a large

part in the life of the country, and, by political factors related to conditions in other countries. India and the countries of Latin America are examples of countries studied at this time. During this year a world view is completed, and the children should be able to think of the entire world in terms of population patterns, work patterns, political patterns, and the natural environmental factors which help to explain these patterns. In the latter level of learning in the junior high school the major understanding is on a world basis. A region or a nation, usually the United States first, is studied in its relation to the world natural environment. Activities of a given type, such as farming activities in the United States, are considered in relation to the cultural and natural conditions in other parts of the world, so that a real understanding of interdependence may be attained.

While many of the maps used in the junior high school deal with the same natural items as are represented on the maps used in the elementary grades, they should be a little more detailed, that is, a little more data may be shown, altho they should contain much less detail than is the common practice. Isotherms and isobars are now represented on the maps, and, of course, taught. Contour maps, such as are used by the United States Geological Survey, are introduced and used thereafter as the need arises, that of the local area receiving first attention. Maps drawn on the Mercator and Gall projections may be employed, but the children should be reminded of their inaccuracies, or distorted areas.

Map-reading abilities developed in the elementary grades are employed daily; other map-reading abilities are developed as new maps or new features of maps are introduced. The children form the habit of turning to maps, first to one type and then to another, to get desired information in the solution of their many geographic problems.

The Senior High School and College. The work of the senior high school involves understandings of greater complexity than those of the junior high school; likewise the work of the college is still more advanced. It is, therefore, reasonable to expect that the map needs of the senior high school should differ from those of the earlier levels of learning, and that those of the college should differ from those of the senior high school, in that the maps in each level should be a little more varied and more complex than those of the previous level.

ESSENTIAL CHARACTERISTICS OF MAPS FOR CLASSROOM USE

In every learning level maps for general classroom use should be large enough and the scale should be great enough that the respective messages may be easily read. Probably more large-scale maps of small areas are a need, particularly in the case of important areas. As previously stated, maps should be carefully graded to fit the needs of children of the various levels of learning. They should contain only data pertinent to the work of the learning level for which they are intended; they should be clear, artistic, and accurate; they should contain only standard symbols; and each should bear a key or legend.

CONCLUSIONS

With careful map development in the fourth grade, with skillful guidance in the development of map-reading abilities thruout the several levels of learning, and with a map equipment consisting of the essential types of maps which meet the standards just enumerated, efficiency in the use of maps should result.

THE PENGUIN AND THE OSTRICH

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Introduction

The writer believes that the field of geography has subject matter which offers vital concepts, attitudes, understandings and facts suitable for primary physical science. Geography can offer in a primary language, scientific description of its physical elements. Complete interpretation as well as a more detailed description of the physical elements of geography may have to be taught when the pupil is more mature.

The two following stories attempt to give brief word pictures of two climatic regions and to show how animals are adjusted to their physical environment. Some information is included chiefly to stimulate interest and not because of its geographic importance.

The Penguin

One day Dick was looking at the pictures in his new bird book. Aunt Ella had sent him the book for his eighth birthday. Some of the birds he could recognize. There were many he did not know.

One was a queer looking creature. It stood upright like a man. Its wings were small and narrow. The breast was white. Its head and back were black.

"What kind of a bird is this?" Dick asked, going to his mother.

"That is a penguin," she answered.

"What is a penguin?" asked Dick.

"A penguin is a bird that lives where it is very cold. The land is almost always covered with ice and snow. A penguin cannot live in warm places. It would die," she explained.

"Do they fly around here in the winter?" asked Dick.

"No, a penguin cannot fly. His body is too large and heavy." Looking at the picture rather puzzled, Dick asked, "Then why does it have wings?"

"For several reasons," she answered. "The most important one is so that it can dive into the water and swim after food. It eats fish."

"Are they good swimmers?" asked Dick.

"Indeed, they are!" answered his mother. "And they are very fast swimmers. They use their wings as oars. They are called flip-

pers. If penguins could not swim they would starve to death."

"Don't they like bugs and seeds like the birds around here eat?"

"There are no insects or seeds where the penguin lives. Where it is very cold, nothing can grow. Where the penguin lives it is always too cold for vegetation to grow. When it is winter, nothing can grow in our garden. Where the penguin lives it is winter all the year round."

"Doesn't the penguin freeze?" Dick asked.

"No, he is well protected. Under his skin he has a nice thick layer of fat. His feathers are oily, too. They keep the cold and moisture out.

"A penguin can stay under water much longer than we can," she continued. "It has a little air pocket in the side of its throat. Before he dives the pocket is filled with air. When it is empty, he comes up for more air.

"A penguin is a friendly bird. He does not run away from man. He has very few enemies. The worst one is a large fish called a shark."

"Will a shark eat a penguin?" asked Dick.

"Yes, if the penguin isn't careful when it is in the water. Sometimes the shark sneaks up on him and snaps off a leg before the penguin can get away. There are a lot of one-legged penguins.

"Most of the times, a penguin can fool a shark," she continued. "If a shark swims above him, the bird's black back is the same color as the deep sea water. The shark cannot see him. If a shark swims below the penguin, the bird's white breast is as light as the sea water, and the shark is fooled again."

"Mother," asked Dick, "doesn't a penguin ever use its wings out of water?"

"When it is in a hurry. Then it gets down on its stomach and with its feet and wings it can glide over the ice and snow very rapidly."

"Is it a big bird?"

"Underneath this picture it says that penguins are usually three and a half to four feet high and weigh from 73 to 94 pounds."

The Ostrich

Dick was now very much interested in his bird book. He would often look at it and pick out the birds he knew. When his mother or father were not too busy, he would ask them to tell him about the birds he did not know.

One evening he asked his father to tell him about the ostrich.

"An ostrich is a very large bird," explained his father. "It weighs around 400 pounds and is 8 feet high."

"Where does it live?" asked Dick.

"Ostriches live in dry open lands. Where ostriches are found, it is very warm most of the year round. It very seldom rains. Do you recall the penguin you asked mother about?"

"Yes," answered Dick, "the black and white bird that stands up."

"Do you recall where it lives?" asked his father.

"Where it is very very cold," answered Dick.

"And the ostrich lives where it is very very warm and dry. Nothing can grow where the penguin lives because it is too cold. Hardly anything can grow where the ostrich lives because it is too warm and dry. Where the penguin lives it is cold all the year round. Where the ostrich lives it is warm all the year round."

"What does the ostrich eat?" asked Dick.

"It feeds on the tough thorny plants that grow in desert lands.

"Where the ostrich lives," he continued, "there is little food and little water. There are also no trees, no forests or other barriers. So, instead of being a bird of wing like our robins, the ostrich is a great runner. In the open lands, with his big long legs, he can travel great distances in one day to get food and water. If he could not travel great distances in a short time, he could not get enough to eat or drink.

"Because of his wide flat feet, he can travel over the soft desert sands for hours."

"What color is the ostrich?" Dick asked.

"The male is chiefly black. The female is a sandy color. Only the feathers on the tail and wings are white. In breeding time the male covers the nest at night. He is black and cannot be seen. The female covers the eggs during the day. Her feathers are the color of the sand. In this way, the ostrich protects its eggs from other animals," Dick's father explained.

"Are ostrich eggs good to eat?" Dick asked.

"Sometimes ostrich eggs have been used, but they are very expensive. The ostrich is a valuable bird. The bird's feathers are sold for $20.00 a pound. Just the white plumes on his wings and tail are expensive."

"What are they used for?" Dick asked.

"The feathers are used for a number of things. They are used

on women's hats, for women's fans, on their dresses sometimes, and a number of other things.

"And, Dick," concluded his father, "ostriches live to be 100 years old."

A THUNDER SHOWER

EDITH WALL
Lawrenceville, Illinois

AIM

To teach:

1. What the thunder shower is
2. To give a description of the shower
3. Time when the shower comes

MATERIALS

1. Sand table
2. Pieces of wood for a log
3. Paper (frog, flowers, grass)
4. Crayons
5. Scissors

PRESENTATION

Given in story form while the children build the story on the sand table.

SOURCE OF MATERIAL

1. Milham: Meteorology
2. Baker and Baker Third Grade Reader: poem of Froggies at at School.

LESSON

On a hot September afternoon this lesson should be taught. It is prepared for kindergarten and first grade level.

Twenty froggies went to school
Down beside the rushy pool,
Twenty little coats of green
Twenty vests all white and clean.

"We must be on time," said they
"First we study, then we play
That is how we keep the rule
When we froggies go to school."

It was a hot September afternoon. One little frog, Jim thought he did not want to go to school. So off he started. He went into a nearby meadow. There he planned to spend the afternoon. For a time Jim played among the flowers and the grasses. He saw a log not very far away. "Oh, I like to jump," said our friend Jim to himself. So he hopped just as fast as he could to the log where he was going to play a game of Leap Frog.

"My, how hot it is!" thought little Jim. But still he wanted to play at Leap Frog. After a time the little froggie grew tired, and he was very, very warm. He slept awhile and when he awoke he was still warm. He could see that it was a bit dark. "Have I stayed too long?" Jim asked himself; and even then he didn't want to go home. Really it was only four o'clock.

Our little friend began to be frightened. He could see clouds and the wind was blowing. He could see the lightning as it cut thru the clouds. He heard the thunder rumble over his head. And then before he could decide to go home big drops of rain were coming down —all around him! Each time it thundered the rain came down faster and faster! There was only one thing for Jim to do. That was to hide in the hollow log over which he had been playing.

He had just got inside when he heard something pounding on the log. Poor Jim wondered who was throwing stones at him. In about fifteen minutes the pounding stopped. Jim crept from his hiding place. It was still raining, but not so hard as it had been. He looked around and on the ground he saw many little white balls. Altho Jim did not know it, these were hail stones which had fallen with the big drops of rain.

Soon after Jim came from his hiding place in the log the raindrops all stopped, and no more hailstones were falling. "Now," said Jim to himself, "it is cooler, I would like to play longer. But I must go home for Mother Frog will think I am lost."

WHY WE HAVE NO LARGE OAK-HICKORY FORESTS IN SOUTHERN ILLINOIS

EDITH WALL
Lawrenceville, Illinois

PREPARATION

The trees of the community should be observed from time to time. In early spring, after the trees have their leaves, or in early autumn before the leaves fall, the teacher should take the pupils on a field trip. The children should become acquainted with terms which may be new to them before the field trip. After the trip, the following story may be told. It is written for first and second grade level.

THE STORY

Long years ago this part of our state had many, many oak and hickory trees. But as you know, there are only a few here now. The way in which these trees disappeared is a very interesting one.

At the same time that our country was covered with oak and hickory trees, there were bears here. There were also rabbits and squirrels. These animals all lived in the oak-hickory forest. They found food in the forest. The squirrels ate the acorns and the hickory nuts and the rabbits would eat the leaves of the tree. Sometimes the leaves would drop to the ground. Sometimes the squirrels climbed the trees and threw down leaves for the rabbits. As you know, rabbits cannot climb trees as squirrels do. The bears also found food in the forest. Sometimes they would find a tree that had honey in it which the little bees had made—and then such a happy time as the bears would have! They were all very fond of honey.

When these animals wanted water to drink they went to the place which we all know as Sugar Creek. The animals called it Sugar Creek too, because one day they dropped some honey in it and this made the water sweet.

The squirrels, rabbits and bears were all very good friends. Often when the squirrels found a tree which had honey in it, they would tell the bears. When the bears had cut down the tree they would invite the squirrels and rabbits to eat honey with them. But they did not often find a tree with honey in it.

Now it was not long until Big Brown Bear's birthday. All the other bears, squirrels and rabbits wanted to surprise him. For days they had all looked for a tree with honey in it. But when the little

squirrels and rabbits could not find one, the bears became angry. One night when the squirrels and rabbits were asleep, the bears had a secret meeting. "Let us cut down all the trees. Then we shall be sure to find the honey," they said.

The next morning the bears scattered thru the forest. They cut a tree here and there, another here and another there. The rabbits and squirrels became afraid. They asked the bears not to cut down the trees. The bears would not listen. Instead, they kept on cutting down trees to find honey for the surprise for Big Brown Bear.

The King of the rabbits and squirrels sent messages to these little animals. He wanted them to come together quickly. They gathered at the king's tree-palace just as fast as they could. And at the same time the bears were cutting down trees as fast as they could.

"We must do something to stop the bears. Soon our trees will be gone and we will have no place to live," said the King. Most of the trees were already cut down and yet the bears would not stop.

"I know what we can do," said the Queen to the King. But we will have to be very careful. Let us give each rabbit and squirrel a bow and some arrows. Let them shoot the bears, for they will not stop cutting down our trees."

There were a very few trees left now! The squirrels and rabbits did want to keep some of them. So just as soon as the King had given them the bows and arrows they marched away to shoot the bears.

So this is the reason we have only a few oak and hickory trees. And also, you know why there are no bears here.

After the story, the pupils should be asked to pick out the parts which are geographically true; they should be able to distinguish the true from the "fairy tale" elements. The pupil's understanding should be developed by the teacher's questioning.

THE OUT-OF-DOORS, GEOGRAPHY'S NATURAL LABORATORY

GEORGE S. CORFIELD
State Teachers College, Duluth, Minnesota

Geography does not lie within the covers of any text. Unlike many other sciences, it always has its laboratory right at hand. For many years teachers have found profit and pleasure in introducing all ages of learners to the subject of geography thru the medium of the laboratory itself. The purpose of this paper is to help teachers recall the many opportunities which exist to make their work in geography or the social sciences more meaningful by using the out-of-doors.

Field work comes well within the scope of the Progressive Education Movement in vogue today. Many superintendents and supervisors are urging that a well rounded series of field trips be planned for the year's work. Such a plan carefully thought out, will aid the teacher in presenting and the learner in grasping relationships between life and environment which have hitherto been dry dull sentences. Planning the outside-the-school-room work for a year is more productive of efficient teaching than the hit and miss plan from day to day or week to week. One is often surprised how he can use the out-of-doors in establishing geographic concepts when a year's plan is carried out.

THE LABORATORY IN RURAL COMMUNITIES

Fortunate indeed is the teacher who begins her experience in the rural area. Close at hand, with no expense, with the dangers of taking children on trips often eliminated entirely, the rural teacher finds many opportunities.

In the autumn when the children come to school the problem of adjustment to the routine, which usually the three months vacation has helped them to forget, field work in the open will come as an excellent transition. Rural teachers find it convenient to group their pupils not by the traditional grade grouping, but according to mental development. Older children learn some fine lessons in citizenship when given the responsibility in caring for a group of younger pupils. Sometimes, and naturally depending upon the size of the school, two or more such groups are organized each with an older pupil as monitor. If the pupils are permitted to have responsibility

in executing these ideas they will come to think of the school as "My school," in which they become more and more an integral part. Instead of being bored, with dry listless attitudes, school, and education in general, will take on a new meaning.

Development of the Work

All out-of-doors work should grow out of class work. Pupils should be led to think of this work as a part of their regular school procedure, not as a picnic or Arbor Day lark! Hence the pupils and teacher should discuss together what they wish to see, in order to make some vague idea live. Many of the first trips should not be long especially if the children are young. For example, the writer attended a rural school in an easern state in his early years. Situated within the area of glaciated land, as all Northern states are, he once asked the teacher how the "hill" behind the school building came to be there. The teacher, after hesitating for a moment, replied, "God put it there." This kind of answer did not satisfy nor did it lead to further questions. For a number of years we tobogganed on the slope in winter, on home-made sleds, we "sailed" pickets on a brook, which was formed of waters from the hill. In our young imaginations we were first in Calcutta then in Bombay then in New York. Too young, with horizons too narrow to conceive where any of these ports were or what they shipped, yet, like Alice, who knew nothing about latitude and longitude, we thought they were grand words to say! So this "hill" played a very definite part in our young lives. When we came to study about "the great ice sheet" or glacier, no reference was made to the hill, to the rock strewn meadow across the road; the huge boulder anchored as a corner pillar to the school property was only a glorified "stone." On all the farms from which the boys and girls came, one of the tasks of out-of-school-hours and especially in the spring after plowing, was to help clear the fields of stones. The "stone-boat" was a necessary piece of farm equipment and the stone pile either in the center for convenience or in the corner of the field for efficiency was a familiar sight. But with each year's crop of stones, no mention was made as to how they happened to be there, or why we always had a fresh crop as the years came. We left that school believing that stones, like Topsy, "just grew." Certainly the Creator took the hard way to revenge these young souls, if He "put them there!" Surely the "Wrath of Jehovah," heard once a week at church, had a far greater significance than did the work of the glacier which had deposited the

material! In introducing (1) water power of New England, (2) fertile or unfertile soils of regions, (3) hydro-electric development, as at Niagara only a few miles away, (4) ease or difficulty in preparing the fields for crops, (5) presence of the famous Finger Lakes of the state and countless other topics could have been suggested by evidences and handiwork of the glacier which, by only looking out of the window, we could see every day.

USE CHILD'S IMAGINATION

About that brook which runs across the corner of the school property, let us see what lessons it offers for the energetic teacher. The location of many cities, large and small, is partly determined by the character of the river. Cincinnati, Cairo, Egypt, New Orleans, Calcutta, Para (Belem) are all located because of some influence of a river. Just as the brook came on to the school property, it made a great crescent-shape bend. We could see that the outer bend had high bluffs, that deposition has occurred on the inner side, that the current naturally took these pickets we were sailing to the side where the bluffs were, but in reading in our texts that Cincinnati was on the outer bend of the Ohio, situated on bluffs, were just mere dry textbook sentences. Right bank, left bank, silt, sediment, flood plain, shores and many other terms could have had a real meaning when we met them on the Rhine, the Yangtse, Mississippi, Congo or Amazon. Where this brook emptied into a river, it had built up large deltas, fine, evenly laid material in the shape of a fan. In the drier part of the year water entered the main stream over this delta in many small streams. But who would think of using child imagination to place a Cairo where these distributaries began or to notice the excellent cotton fields of the Nile delta on this fan-shaped formation! Why the Nile delta can produce such an excellent grade of fiber had no connection to this particular phenomenon. In the spring with the melting of the snow and results of frequent showers, the brook reached a width several times that of its normal size. In one place it had built a natural levee along its banks. Did the study of New Orleans and the problem its people have of keeping water from their doors occur to us or the teacher? No! The textbook sentence, "One of the problems of the people of New Orleans is keeping water out of the city," was learned, recited or written back to the teacher and we received an "A" in Geography! More vague yet were the dykes of Holland. The heroic work of the Dutch in reclaiming and keeping their land for themselves, was a

fact read about and when we piled up the earth to keep the water out of one corner of our baseball field, and hoping there should be no leak—no one saw any connection between the story we like to read or the actual work of these splendid people! As has been indicated in the foregoing discussion, many general truths and geographic concepts may be established with the younger pupils, to help give their reading deeper significance in later years.

Surely any teacher planning his out-of-doors work for any length of time, should first himself study the opportunities of the immediate community.

Along with these suggestions and thruout the year, pupils should be led to notice the lengthening and shortening of the day. This may be done by referring to home activities. Use of electricity or kerosene lamp at breakfast and the expense of oil or electricity as a result. Why do we pay more for our light in winter than in summer? Danger of doing barn chores by lantern light in winter could be well within the knowledge of many rural children and a good point of departure. The use of the shadow stick to observe the difference in shadow length. An old broom handle forty-eight inches long for easy arithmetical computation, set in a wooden block, serves very well. To have the pupils observe at least one day a month and make an accumulative record of these data on the blackboard or chart, increases the interest. Committees for each month may be appointed by the pupils and when finished at the end of the year, excellent material for oral or written themes in English may be an outgrowth. Certainly for younger pupils to grasp the relation of "high sun, short shadow and warmer weather" and its reciprocal "low sun, long shadow, cooler weather" some procedure of this kind seems necessary. Then for the older pupils the activities of people in foreign lands, as Sweden or Canada take an added meaning.

Practical Suggestions for Climate Study

Reading the thermometer, fastened outside, on the window and recording the daily readings in some permanent way helps to further this concept. Every school ought to have an out-door thermometer as well as one inside for room temperatures.

Some form of rain guage, an empty can with a common rule, bringing and keeping record of the rainfall of the local area, helps to bring reality and meaning to the textbook descriptions and serves as a measuring stick in studying rainfall in distant places. Having

the children gather their own data, make their own records (class or individual) and write their own conclusions seems excellent foundation for work later on, when more complex research comes. It builds up a confidence in his own abilities and suggests the right attitude toward work, so often present only in the minds of the most scientific.

For the older pupils, longer trips, and more complex relationships studied over a longer period of time can be accomplished. One group found it difficult to really understand the meaning of a textbook sentence, "Crop rotation is practiced." When they had finished recording the crops grown on certain fields on their father's farm, the difficulty vanished and they had really learned the true and full significance. Making simple maps of the farm as to use of the land each year over a period of years proved very interesting. The real meaning of *scale* of the map came when these pupils had paced off each of the fields studied and had drawn their maps.

Another rural school used a camera to good advantage. Situated near the edge of a deep and relatively narrow valley, this suburban school studied the transportation methods used by the moderate sized city nearby. Below them they found two railways, two paved roads, telephone and telegraph lines and an abandoned canal leading to a river. They took a picture of this scene. When developed each member had a copy and each told what the picture meant to him. When they studied the Rhine Valley as a unit, problems of cities along its banks had a wider significance. The text had reproduced a picture very similar to the one they had taken.

Without doubt the rural community offers many opportunities in aiding children to establish right ideas and concepts. Who could ask for a better laboratory, than Nature's own?

A UNIT ON SWITZERLAND

LOUISE PURNELL
Mahomet, Illinois

This unit is suggestive of the type of exercise that may be developed by any teacher willing to spend a few hours planning the material available on any topic in geography.

Instead of one text, the plan calls for a few copies of each of the standard geography texts and supplementary readers which are made available for student use in the room library. The teacher makes an outline for each unit studied, together with a list of references of source material. Enough copies of the outline are then made on the ditto so that each pupil has his own study guide sheets. The findings of each student are recorded in his individual work book.

The following unit on Switzerland is suggestive of the type of lesson plan the writer has used in teaching fifth grade work in Mahomet, Illinois. It has led to wide reading and enthusiasm for geography.

REFERENCES

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Carpenter: Our Neighbors Near and Far. American Book Co., Chicago
Barrows and Parker: Journeys in Distant Lands. Silver Burdett & Co., Chicago
Ridgley, Hart and Howe: World Journeys. McKnight & McKnight, Bloomington, Ill. (Text and workbook)
Stull and Hatch: Journeys Through Many Lands. Allyn & Bacon, Chicago
Atwood and Thomas: Home Life in Far Away Lands. Ginn & Co., Chicago
Bodley: Peoples of Other Lands. Iroquois Publishing Co., Syracuse, N.Y.
McConnell: Living in Different Lands. Rand McNally & Co., Chicago

Part I. Smith (Pages 179-205)

A. Supply words needed.

1. Most high plains are called _____.
2. The most interesting thing about Switzerland is its _____.
3. Two Swiss flowers are _____ and _____.
4. A low place between high mountains is called a _____.
5. Snow sometimes gets _____ or _____ feet deep.
6. One of Switzerland's glaciers is _____ miles long.
7. A stout cane with a sharp iron on one end and ax and hoe on the other end is called an _____.
8. Three foods the herdsmen eat are _____, _____, and _____.

9. Three things we sell Switzerland are ————, ————, and ————.
10. The most important center for snow sports is ————.
11. The ———— owns most of the railroads.

B. Write complete answers to the following.

1. How does the road avoid steep grades?
2. Why are there no trees above the tree line?
3. How do they celebrate when the cows leave the village?

Part II. Carpenter (Pages 121-139)

A. Supply words needed.

1. A snow slide is called an ————.
2. Switzerland is often called the ———— ———— ————.
3. A chalet is a ————.
4. Barns are used most during the ————.
5. There are ———— seasons in Switzerland.
6. Two words which describe the Swiss people are ———— and ————.

B. Write complete answers to the following.

1. What are navigable rivers?
2. Why are not Swiss rivers navigable?
3. Give two uses of rivers.
4. Why are the roofs sloping and low?
5. How do they keep the roofs from blowing away?
6. Why is it harder to breathe the higher we go?
7. What happens if a child does not go to school?
8. Which is more expensive, sea or land transportation?
9. How does the cold climate help the Swiss?

Part III. Barrows and Parker (Pages 83-98)

A. Supply words needed.

1. It takes a train ———— to go thru St. Gothard's Tunnel.
2. There are ———— tracks in the tunnel.
3. ———— miles are saved by going thru the tunnel.
4. Four Swiss "C's" are ————, ————, ————, and ————.
5. Two Swiss "F's" are ———— and ————.

B. Write a complete answer.

1. Why is "Dotted Swiss" so called?

Part IV. Stull and Hatch (Pages 92-99)

A. Supply words needed.

1. Geneva is famous for ———— and ————.
2. The ———— take care of the fields in the summer.
3. One of the leading occupations of Switzerland is ————.
4. In the ———— part of Switzerland the farms are larger.

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Mahomet, Illinois

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A. Supply words needed.

1. Geneva is famous for ———— and ————.
2. The ———— take care of the fields in the summer.
3. One of the leading occupations of Switzerland is ————.
4. In the ———— part of Switzerland the farms are larger.

5. Eight articles manufactured in Switzerland are ————, ————, ————, ————, ————, ————, ————, ————, and ————.

B. Write a complete answer.

1. How small are some of the fields?

Part V. Atwood and Thomas (Pages 124-141)

A. Supply words needed.

1. Most of the houses are made of ————.
2. Climbers wear ———— in their shoes.
3. Rows of mountains are called mountain ————.

B. Write complete answers.

1. Why do they use scythes instead of mowing machines to cut hay?
2. Which must have the best grass, cows or goats?

Part VI. Bodley (Pages 46-53)

A. Supply words needed.

1. ———— is the power that runs the machinery and factories.
2. The source of Switzerland's wealth is its ————.

B. Write complete answers.

1. What are glaciers?
2. Name the four principal rivers that begin in the Alps and tell into what each flows.
3. Why is not Switzerland a leading trading nation?
4. Give three reasons why tourists visit Switzerland.
5. What does the story of William Tell show?

Part VII. McConnell (Pages 104-121)

A. Supply words needed.

1. Hills beside mountains are called ————.
2. The Simplon Tunnel is used by a railroad between the countries of ———— and ————.
3. During the month of ———— the farmers start up the mountains with their cattle.
4. The favorite sport of Switzerland is ————.

B. Write a complete answer.

1. Give two reasons why Switzerland is colder than Italy.

QUESTIONS FOR DISCUSSION

1. How does a pass help travelers?
2. What is "white coal?"
3. Would you say that the Swiss are nomads? Why?
4. Why do you think the Swiss farmers eat more cheese and less meat than farmers do in the United States?
5. Switzerland is a long way from Greenland. Why are there glaciers in both places? Which has the larger glaciers? Why?
6. Do you think the Swiss are a skilful people? How would you prove it?
7. What do we call the lines on the map and the globe that tell us how far from the equator a place is? Draw such lines on a floor map to show how far from the equator Switzerland and your state are. Which is nearer the equator, Switzerland or the state in which you live?

8. Name the three chief languages people in Switzerland speak. Why do they learn to speak so many?
9. How do the Swiss manage to do some trading with people in other lands? Would they do more or less of this trading if the ocean touched Switzerland? Why?
10. Why are the cities of Switzerland on the plateaus instead of in the mountains?
11. Does the sun set later in Switzerland or in the Mediterranean countries? Why?
12. Why are some cows not kept on the farm in the summer?
13. Why are mowing machines not used to cut hay?
14. How are the buildings on our farms different from the buildings on their farms?
15. What kind of livestock do they keep which we also keep?
16. Why do the railroads in Switzerland make so many twists and turns?
17. Why do the railroads run thru so many tunnels?
18. What kind of power is used to run most of the Switzerland railroad trains?
19. How is that kind of power made in Switzerland?
20. Why is it hard to build roads in Switzerland?
21. Why are most of the houses built of wood?
22. Why are the farms in Switzerland so small?
23. Why do many Swiss people go to higher parts of the mountains in summer?
24. Why do they make so much cheese?
25. How do altitude and latitude affect the climate of a country?
26. Do the Swiss ship their goods across the sea in their own ships? Why?
27. Why do many people of other countries visit Switzerland?
28. Why are the mountains of Switzerland a source of wealth to its people?
29. How are logs brought down from the mountain sides?
30. Why do you think there are no cities like New York or Philadelphia in Switzerland?
31. Why do the Swiss have to buy metal and cotton from other lands?

Additional Exercises

Probably no pupil will be able to complete all the work given in the unit, but each child may choose from the additional exercises those of greatest appeal. The additional exercises, as well as the rest of the unit, provide for much reading in the several texts, and all this serves as a valuable aid of comparison. It is also an incentive to do much more work than reading in only one text.

1. Make a map of Switzerland and its bordering countries. Make each country out of different cloth. Mount on construction paper.
2. How many buildings as high as your schoolhouse equal 1,000 feet?
3. Make a poster showing the various kinds of vegetation which grow at different altitudes. Find pictures of the different crops.
4. Write a letter to a friend back home telling about the wonders of Switzerland. In your letter tell of the following things: the Alps, a Swiss lake, the rivers of Switzerland, the waterfalls, an Alpine glacier, an avalanche.
5. Make a poster of the crops raised in Switzerland.
6. Make a map of Europe, coloring Switzerland solid black.
7. Make a pictorial map of Switzerland, showing pictures of cows, goats, chalets, villages, products, etc.
8. Use the following words in sentences: mountain pastures, foothills, crest, pass, tunnel, glacier, source, skiing.
9. Make a talk on one of the following subjects: By Motor Thru Switzerland; A Skiing Party in the Swiss Alps; A Climb to the Top of a Mountain; A Day in a Swiss Village.

KEY TO COMPLETION TEST

Part I.

1. Plateaus
2. Alps Mountains
3. Alpine rose and edelweiss
4. Pass
5. 40 or 50
6. 12 miles
7. alpenstock
8. Milk, cheese, and bread
9. Grain, cotton, and petroleum
10. St. Moritz
11. Government

Part II.

1. Avalanche
2. Playground of the world
3. House
4. Winter
5. Four
6. Brave and free

Part III.

1. 15 minutes
2. Two
3. Nine
4. Cheese, condensed milk, milk chocolate and cows
5. Factories and falls

Part IV.

1. League of Nations and Red Cross
2. Women
3. Taking care of tourists
4. Northern
5. Watches, cotton cloth, woolen cloth, silk cloth, rayon, textile machinery, farm tools, electric machinery.

Part V.

1. Wood
2. Nails
3. Ranges

Part VI.

1. Electricity
2. Mountains

Part VII.

1. Foothills
2. Italy and Switzerland
3. May
4. Skiing

CHECK LISTS FOR USE BY TEACHER AND PUPIL IN THE EVALUATION OF GEOGRAPHIC TOOLS

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Good geography teaching is the ultimate outcome of a careful selection of tools of high geographic quality. In preparation for each new unit of work the geography teacher must assemble and analyze the various tools available to ascertain whether each will or will not function toward the major understanding of that unit. Check lists have proven to be a time-saving device for use by the teacher in making such selections.

Another responsibility of high purport falling on the shoulders of the geography teacher is that of making the pupils "tool conscious." Check lists function in this capacity also. At the end of a unit of work the pupils may be given a mimeographed list of tool-using activities and asked to check those they employed during their study of the unit. Each map or graf built by a pupil must be perfect in form. Upon the completion of such a task the pupil should check the product of his efforts for himself. He may use a check list posted on the bulletin board.

Samples of criteria for evaluating geographic tools for use by the teacher, and for use by the pupil follow. These may be readily adapted to any level of geography, or to geographic tools in general.

I. Check lists for use by teachers
   A. Criteria for evaluating word matter
      1. Is the idea stated one that is merely descriptive, or is it an interpretive idea?
      2. If a relationship, is it one of:
         a. cultural——natural
         b. cultural——cultural
         c. natural——natural
      3. Is the human item stated first? the natural item?
      4. Is the terminology qualitative or deterministic?
      5. Into which level of difficulty will it fall?

Grade	Geogr. Level	Level of difficulty
4	1	one-step relationships
5	2	two-step relationships
6	3	multi-step relationships with no external ideas stated or implied
7–8	4–5	multi-step relationships with external ideas stated or implied

6. If a relationship of levels 3, 4, or 5 does it utilize historic or economic ideas? If so, write same within ( ).

B. Criteria for evaluating pictures

1. Is the picture of high geographic quality because it shows:
   a. a human activity in its natural setting?
   b. the results of a human activity in its natural setting?
2. Is the picture of low geographic quality because it shows:
   a. only human items?
   b. only natural items?

   } If so, how can it be used to create a geographic concept?
3. Is the picture of no geographic quality because it is:
   a. inaccurate in geographic detail?
   b. shows meaningless close-ups?
   c. indistinct?
   d. lacks sufficient detail to give a complete geographical concept?

   } If so, how can an acceptable substitute be found?
4. Is the picture on the level of difficulty demanded by the unit?
5. Will the picture function toward the geographic personality of the unit?
6. At what phase of the unit will the picture function best?
7. Will the picture convey the desired geographic idea better than any other tool?

C. Criteria for evaluating grafs

1. Does the graf have all the characteristics of a good graf? (title, key, source of data, date, scale or unit of measure, common base line)
2. What kind of a graf is it? At what level of difficulty will it function?

Grade	Geogr. Level	Level of difficulty
5	2	semi-pictorial, simple bar
6	3	multi-unit, bar
7–8	4–5	combination, circle, trend

3. Is the graf on the level of difficulty demanded by the unit?
4. Will the graf function toward the geographic personality of the unit?

5. At what phase of the unit will the graf function best?
6. Will the graf convey the desired geographic concept better than any other geographic tool?

D. Criteria for evaluating a basic wall map*

1. Is the content as simple and practicable as possible?
2. Is the content of the map adapted to grade level?
3. Do the colors comply with those adopted for the International Map of the World?
4. Has the cartographer wisely eliminated insert maps?
5. Is the map and the scale large enough to be read from the rear of a classroom?
6. Are the lines indicating coasts, rivers, boundaries, as well as the grid lines, distinct?
7. Do the colors in the key correspond accurately with those used on the map?
8. Does the legend contain a scale?
9. Are the names so arranged on the map that legibility is kept at a maximum?
10. Does the map use the native spellings as authorized by the U. S. Geographic Board?
11. Has the map been made by a recognized authority of geography?
12. Is the map up-to-date and accurate in the detail shown?
13. Has the cartographer selected the best map projection for the area plotted?

II. Check lists for use by pupils

A. Qualities of a good map

1. Does my map have a good title?
2. Does my map have a key?
3. Does my map have the source of data?
4. Does my map have the latitude and longitude indicated along the frame work of the map?
5. Does my map have a scale?
6. Does my map have the coastlines (not of islands) continued to the framework of the map?

B. Qualities of a good graf

1. Does my graf have a good title?

*Adapted from: *The Thirty-Second Yearbook, National Society for the Study of Education.* Bloomington, Illinois: Public School Publishing Company, 1933, pp. 399-403; and Thralls-Reeder, *Geography in the Elementary School,* N.Y.: Rand McNally and Co., 1931, pp. 384-91.

2. Does my graf have a key if I have shown more than one kind of data?
3. Does my graf have a common starting place for all the data shown?
4. Does my graf have a scale or a unit of measure?
5. Does my graf have the source of data?
6. Do I have the date, when the figures were published, on my graf?

C. Tools used during study of unit.

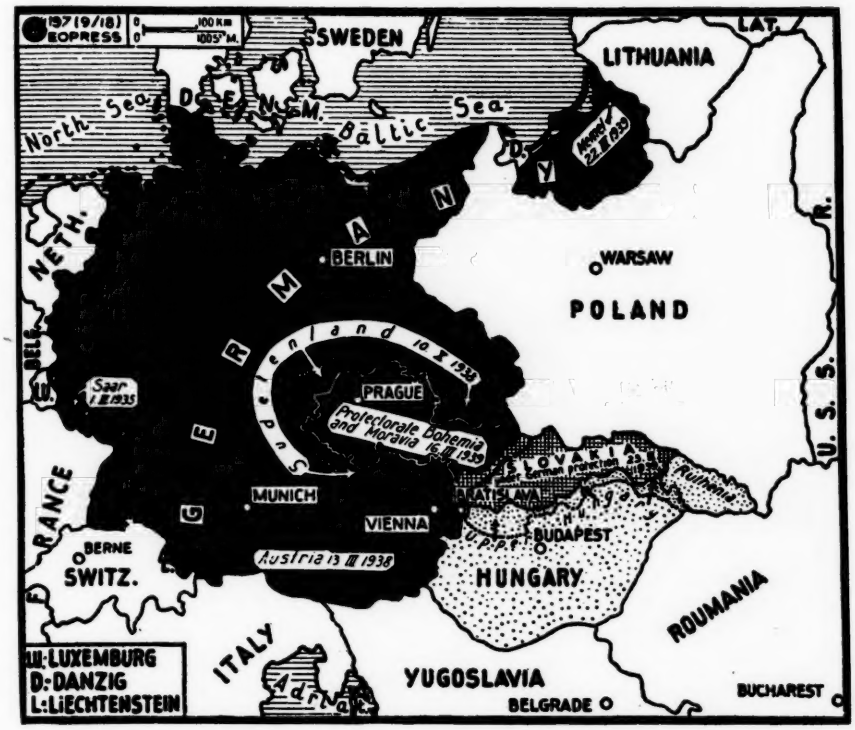
Name .....
Section .....
Date .....

THE NAME OF THE REGION IS

Directions: Place a (√) in the column opposite each activity you engaged in during your study.

1. I used a physical-political map.	☐
2. I used a population map.	☐
3. I used dot distribution maps.	☐
4. I used color-ban distribution maps.	☐
5. I used precipitation maps.	☐
6. I used our wall maps.	☐
7. I used an atlas.	☐
8. I traced a map of the region.	☐
9. I sketched a map of the region.	☐
10. I compared maps to discover relationships about the region.	☐
11. On maps I compared the region with other regions studied.	☐
12. I used pictures.	☐
13. I used two or more pictures to build a relationship.	☐
14. I tried to get a mental picture of the landscape of the region by studying pictures.	☐
15. I used grafs.	☐
16. I built a graf.	☐
17. I used tables of statistics.	☐
18. I built a table of statistics.	☐
19. I made a model of a typical human adjustment in the region.	☐
20. I found specimens that were made in the region.	☐
21. I tried to organize my findings so I could remember them.	☐
22. I thought over what I read to be sure I understood clearly.	☐
23. I read carefully in order to get geographic ideas.	☐
24. I answered problems on the region.	☐
25. I read current news items about the region.	☐
26. I consulted reference books.	☐
27. I listened for news reports about the region over the radio.	☐
28. I added news items to my scrap book.	☐
29. I used my index to aid me in the correct pronunciation of new proper names.	☐
30. I used the dictionary to find the meanings of words new to me.	☐
31. I used the *World Almanac*.	☐
32. I used the *Foreign Commerce Yearbook*.	☐
TOTAL ACTIVITIES I CARRIED OUT	☐

EDITORIAL NOTES AND NEWS



German expansion has proceeded at a rapid pace since 1935. Following the recent frontier modifications, the territory and population of Germany and Hungary are now approximately as follows:

	Area in Sq. Miles	Population
Germany (before Mar. 1, 1935)	180,998	65,335,900
The Saar territory (attached Mar. 1, 1935)	743	812,300
Austria (attached Mar. 13, 1938)	32,341	6,758,100
Sudetenland (attached Oct. 10, 1938)	11,185	3,636,200
Protectorates of Bohemia and Moravia (attached Mar. 16, 1939)	19,059	6,804,900
Memel territory (attached Mar. 22, 1939)	1,100	147,600
GERMANY (end of March 1939)	245,426	83,495,000

On Mar. 23, 1939, Slovakia (14,765 square miles and 2,450,100 inhabitants) was placed under German protection. The broken line on Slovakia indicates the eastern frontier of the German military zone recognized by treaty.

Hungary has likewise increased its area and population approximately as follows:

	Area in Sq. Miles	Population
Hungary (before Nov. 2, 1938)	35,935	9,038,200
Upper Hungary (attached Nov. 10, 1938)	4,663	1,029,600
Ruthenia (attached Mar. 20, 1939)	4,283	552,100
HUNGARY (end of March 1939)	44,881	10,619,900

Erna Grassmuck Gilland, chairman of the National Council's Educational Relations Committee reports that there will be two sessions of the Geography Section of the World Federation of Education Associations meeting in Rio de Janiero, August 6-11. The addresses will deal with regional studies, methods, and specific problems confronting geography teachers of the countries in the Federation. It is hoped that means may be devised to keep geographic knowledge up-to-date thru exchanges, and evolve procedures whereby closer contacts between geography teachers and pupils in various countries may be established. Other aims include the assembling of information on source materials and the formulation of map standards.

The National Council of Geography Teachers is sponsoring three programs in cooperation with the National Education Association meeting this summer in San Francisco. The theme of the session on July 3 is Geographic Education as an Essential in Democratic Living; and that of July 5 is Sequential Geographic Education Goes Forward. Further particulars may be secured from Erna Grassmuck Gilland, 327 Wood St., California, Pa., chairman of the Council's Educational Relations Committee.

Louise W. Mears, Milwaukee State Teachers College, will attend the meeting of the Eighth Biennial Congress of the World Federation of Education Associations at Rio de Janeiro, August 6-11. She will present a paper in the Geography Section, as a member of the National Council of Geography Teachers. The party leaves New York on the Steamship *Rotterdam,* July 5 and returns August 27.

A recent release from the Bureau of Foreign and Domestic Commerce states that Hungary is now the world's leading bauxite producer. This follows as a result of the limitations that France imposed on its bauxite exports to Germany in 1935. In September, 1938, France stopped its exports of bauxite to Germany as a precautionary war measure. The United Kingdom is the chief importer of French bauxite, most of which is exported from Toulon. Only about 20 per cent of Great Britain's supply of aluminum comes from imported bauxite, however, but comes as ingots, sheets or foil of the metal, coming from countries with cheap hydro-electric power, such as Canada, Switzerland, and Norway. The latter countries are importers of bauxite or of alumina which is obtained from bauxite. The largest developments in Great Britain's plants using bauxite are in Wales, with plans for a large duralumin products plant by a Birmingham firm. The *London Mining Journal* affirms that recent prospecting has revealed rich deposits of bauxite in Transylvania, Rumania, which are estimated to be between two and ten million tons.

Dr. Vernor C. Finch and Dr. J. R. Whitaker of the University of Wisconsin, will serve, respectively, as visiting professors at Harvard University and the University of Minnesota during the summer session.

DR. N. A. BENGTSON, University of Nebraska; DR. GUY-HAROLD SMITH, Ohio State University; DR. S. VAN VALKENBURG, Clark University; DR. S. W. BOGGS, United States Department of State; and W. B. MERRIAM, Cheney, Washington, will serve as visiting professors at Columbia University this summer.

A geographic medal, known as the Louise Mears Geographic Medal Award, will be awarded at three institutions of higher learning this year, for superior theses on local geography. The schools are the University of Nebraska, the Peru Nebraska State Teachers College, and the Moorhead Minnesota State Teachers College. The donor is Miss Louise Mears, Professor of Geography at the Milwaukee State Teachers College, who has been associated at some time with each of the three institutions.

The Alabama State Council of Geography Teachers held its annual meeting in Montgomery, March 24, 1939, Miss Sarah Turner, Selma, Ala., presiding. About seventy-five teachers attended the meeting. Significant business attended to by the Council was the adoption of a constitution, and the election of the following officers: President, Geneva Hill, Hazel Green, Ala.; Vice President, Dr. J. Allen Tower, Birmingham Southern College; Secretary-Treasurer, Dr. J. Sullivan Gibson, Livingston State Teachers College; State Director, Dr. Floyd F. Cunningham, Florence State Teachers College.

The program consisted of the following numbers: Report of the Boston meeting of the National Council of Geography Teachers, Dr. Floyd F. Cunningham; Learning Democracy Thru a Geographic Study of Switzerland, Irene Abernathy, Tuscaloosa, Ala.; Helping Children to Understand their Environment, Etheleen Daniel, Troy State Teachers College; Discussion, led by Thomas Howse, Wilson Dam, Ala.; Teaching Fundamentals in Teachers College Geography, Dr. A. E. Parkins, George Peabody College, Nashville, Tenn.

In addition to this program an exhibit of student work consisting of maps, scrapbooks, models, etc., contributed by various grade schools of the state, proved very stimulating.

Beginning with the scholastic year, 1939-1940, geography at the University of Missouri will be accepted as fulfilling the Freshman-Sophomore requirement in the social sciences. The new requirement is ten hours in at least two of the social sciences, economics, history, political science, and geography. Heretofore geography has been an elective only.

GEORGE J. MILLER, Editor of the JOURNAL, will teach two courses at the University of Wisconsin during the summer session.

"China's Geographic Foundations" has just been published in a French edition by Payot in Paris under the title of "Geographie Humaine et Economique de la China." In addition to three printings in the United States, it has also appeared in three pirated Chinese editions.

Earthquake tremors that shook Chile on January 24, 1938, were recorded over an area between Iquique and Puerto Montt. The greatest destruction occurred in the vicinity of Concepción, the coal mining center, and its port city, Talcahuano; and in Chillán, an agricultural market center in Chile's rich Central Valley. Relief is being extended by emergency public and private agencies. Shelter is so badly needed that the Government is erecting temporary wooden barracks to house the destitute during the coming winter. Naturally, after the many catastrophes that Chile has had, a few are always present who tend to report false quakes and thus start panics. Such offenders are being punished by Chilean authorities.

This year the Railway Express celebrates its hundredth anniversary and honors W. F. Harnden, credited with the founding of express services. When Harnden started carrying other people's packages, there was no railroad between Boston and New York. Carrying his patrons' packages in a carpet bag, he traveled by rail from Boston to Providence where he boarded a ship for New York. Other services of his included the distribution of money, the paying and collecting of bills, the "delivery" of timid European immigrants to the Middle West. Many companies offering similar services were organized in various parts of America; some to fail, others to merge. Most colorful, perhaps, in the pageant of western transportation developments were the Wells-Fargo stage coaches and their intrepid drivers, the spectacular robberies thereof, and the Pony Express which, twice a week, for two years galloped between St. Joseph, Missouri, and Sacramento, California. The latter route corresponds roughly with U. S. Route 30 to Salt Lake and U. S. 40 from there westward. Our express today is mostly rail-borne but when need arises it is supplemented by all known transportation agencies including those of the air.

Buffalo grass, which forage specialists of the United States Department of Agriculture rate the best grass for the Great Plains, has been developed thru breeding and selection by the Federal Bureau of Plant Industry to produce a plant with a fairly heavy crop of seed that grows high enough above the ground to be harvested by a mower. Some plants have seeded as high as five inches above ground and have produced 20 to 80 pounds an acre. Eight pounds will seed an acre planted in rows 30 inches apart. In recent years, pieces of buffalo grass sod set three to four feet apart have been used to start new growth. Altho no seed for general distribution is yet available, when it is made available, it will doubtless displace sodding which restores grass coverage slower than seeding.

So vigorous has the Flemish-speaking population of Belgium been to get more recognition of the Flemish language that Belgium has changed a number of place names to their Flemish spelling. Among these are the following: Ypres is now Ieper; Louvain is Leuven; Bruges, Brugge; Courtrai, Kortrijk; Mons, Bergen; and Rammont is Geeraardsberger. Further recognition of Flemish culture is evident in the newly formed Flemish Academy of Science, Letters, and Fine Arts in Brussels which will function alongside of the Belgian French Academy.

According to statistics recently published by the Department of State, the number of Americans living in Europe total highest in Italy, followed by England.

The Federal Power Commission on January 31, 1939, made the preliminary announcement that electric energy production in the United States in 1938 totaled 115, 825,000,000 kilowatt-hours, 38 per cent of which was developed by the use of water power.

According to a release from the Federal Bureau of Agricultural Economics, the cash income from all crops in 1938 was more than three billion dollars. More than 100 separate commodities, all more or less competitive, are involved in the tabulation, each having its own economic problems. The cash income from corn was more than a quarter billion dollars, the greatest total since 1930. The income from soybeans is increasing rapidly; that of 1938, the greatest on record, amounted to almost 32 millions.